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EXAMINER	
CRAIG, DWIN M	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/765,820	BAHEL ET AL.	
	Examiner	Art Unit	
	DWIN M. CRAIG	2123	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 August 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14,16-21,23-25,27-48,50-54 and 56-70* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14,16-21,23-25,27-48,50-54 and 56-70* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-14, 16-21, 23-25 and 27-48, 50-54 and 56 have been presented for reconsideration based on Applicants' arguments and amended claim language. Claims 57-70 have been presented for examination.

Response to Arguments

2. Applicants' arguments presented in the 8/21/2008 responses have been fully considered; the Examiner's response is as follows:

2.1 As regards Applicants' amendment to the specification, the Examiner has no objection to the correction to the specification in paragraph [0108].

2.2 Regarding the Applicants' response to the non-statutory double patenting rejection of claim 43, the claim has been amended to include the limitation of *said configuration information including a number of equivalent parallel refrigerant circuits*, *emphasis added*, therefore the previously applied non-statutory double patenting rejection has been withdrawn.

2.3 Regarding the 35 U.S.C. 103(a) rejections of claim 43, Applicants' have argued on page(s) 18 & 19 that the previously applied prior fail to teach the newly amended limitation of *said configuration information including a number of equivalent parallel refrigerant circuits, emphasis added*. More specifically, Applicants' argued on page 19,

"See Office Action, 4/21/2008, p. 21, para. 13. With respect to limitations previously recited by now-cancelled Claim 55, the Examiner points to Kasai et al., U.S. 6,510,698. Kasai et al., however, simply describes a system of replacing a refrigeration system with a plurality of refrigerant circuits arranged in parallel. Kasai et al., however, is silent with respect to inputting configuration information for a heat exchanger, the configuration information including a

number of equivalent parallel circuits and with respect to processing such configuration information through a model of a cooling system and generating system outputs based on the processing. Applicants respectfully note that a description of refrigeration circuits arranged in parallel is distinguishable from inputting configuration information for a heat exchanger including a number of equivalent parallel circuits and processing that configuration information through a model." The Examiner acknowledges that the previously applied prior art references, specifically *Kasai et al.*, is silent as regards to the teaching of a *heat exchanger* as argued, Therefore;

Applicant's arguments, see pages 18 & 19, filed 8/21/2008 with respect to claim 43 have been fully considered and are persuasive. The rejection of claim 43 has been withdrawn.

2.4 Regarding Applicants' arguments as regards the 35 U.S.C. 103(a) rejections of claims 8, 9, 10, 49, 27-31, 33, 34, 37-39, 41, 52, 36, 4, 7, 14, 21, 32, 35, 42, 40, 50, 51, 53, 54, 55 and 56 on page(s) 20 through 22 of the 8/21/2008 responses, as argued by the Applicants' these rejections are moot because of the newly amended claim 43 and the newly added limitation of *said configuration information including a number of equivalent parallel refrigerant circuits, emphasis added.*

Applicant's arguments, see pages 20 through 22, filed 8/21/2008 with respect to claims 8, 9, 10, 49, 27-31, 33, 34, 37-39, 41, 52, 36, 4, 7, 14, 21, 32, 35, 42, 40, 50, 51, 53, 54, 55 and 56 have been fully considered and are persuasive. The rejection of claim 43 has been withdrawn.

2.5 Regarding Applicants' arguments regarding newly presented claims 57-60 more specifically independent claims 57 & 65 presented in page(s) 22 through 26 of the 8/21/2008 responses.

Applicants' argued that, *Rossi et al.* fails to teach the newly presented limitation of, *outputting at least one flow control device that corresponds to the at least one flow control device selection parameter generated by the computer simulation,* the Examiner notes that the record already speaks to this limitation not being expressly disclosed by *Rossi et al.* Applicants' then argue that, *Shiiba et al.* is silent as regards a teaching of *configuring a model of a cooling system to condenser parameters and compressor parameters, generating at least one flow control device selection parameter generated by the computer simulation* as recited in newly presented claim 57. No prior art rejection has been applied against claim 57, assuming that *Rossi et al.* and *Shiiba et al.* would be applied as prior art under a 35 U.S.C. 103(a) rejection of this claim, against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

As regards Applicants' arguments against the *Kumada* and Pray *et al.* reference(s) again Applicants' are arguing against references that have yet to be presented in a rejection and further attacking each reference in a piecemeal fashion.

2.6 Regarding Applicants' newly presented arguments regarding newly presented claim 65, Applicants' have presented substantially the same arguments as set forth regarding newly presented claim 57, therefore the Examiner responds to said arguments in the same manner as set forth above.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

3. Claim 43 is rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 12 and 13 of U.S. Patent No. 7,010,926 in view of U.S. Pat. Publication 2004/0129011 to Kikuchi et al.

Although the conflicting claims are not identical, they are not patentably distinct from each other because both claims model a cooling system, claim 43, *a method of computer-based simulation of cooling system,* claim 13 *processing said condensing unit characteristics and compressor characteristics based on said multiple simulation points,* both claims teach *condensers and evaporators with parameters* in the simulation, both claims disclose selecting a *refrigerant characteristic* in the claim 43 *inputting refrigerant properties for a refrigerant flowing through said cooling system* in claim 13, *...and refrigerant type*, claim 43 teaches *at least one of said condensing and said evaporator parameters including configuration*

information for a heat exchanger of said cooling system, claim 12 teaches, *selecting an application type for an evaporator* and *processing said condensing unit characteristics,* regarding the limitation of a *heat exchanger* in section [0002] is discloses, *The condensing unit operates as a heat exchanger*... therefore the teaching of a condensing unit in claim 12 meets the claimed limitation of a *heat exchanger* as disclosed in claim 43. Both claims disclose the teaching of an output, claim 43; *generating system outputs based in said processing* claim 12, *outputting thermal performance data*...

However, U.S. Pat. 7,010,926 does not expressly disclose the newly amended claim limitation, *said configuration information including a number of equivalent parallel refrigerant circuits.*

Kikuchi et al. teaches, *a number of equivalent parallel refrigerant circuits* [0055].

U.S. Pat. 7,010,926 and Kikuchi et al. are analogous art because they both come from the same problem solving area of cooling systems.

Therefore, it would have been obvious to an artisan of ordinary skill, at the time of the invention to have used the parallel refrigerant circuits teachings of Kikuchi et al. with the cooling system modeling teachings of U.S. Pat. 7,010,926.

The motivation for doing so would have been to provide for a model of a cooling system that reflects the known in the art method of using parallel refrigerant circuits in order to improve efficiency of cooling systems, see [0005] of Kikuchi et al. Further, an artisan of ordinary skill, at the time of Applicants' invention would *desire* that a model of a cooling system include improvements to cooling system technology as they become available.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. Claims 1-14, 16-21, 23-25 and 27-48, 50-54, 56 and 57-70 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 1-14, 16-21, 23-25 and 27-48, 50-54, 56 and 57-70 are rejected under 35 U.S.C. § 101 because all process claims ***must*** (1) be *"tied"* to another statutory class (such as a particular apparatus) or (2) transform underlying subject matter (such as article or materials) to a different state or thing. *See Diamond v. Diehr,* 450 U.S. 175, 184(1981); *Parker v. Flook,* 437 U.S. 584, 588 n.9 (1978); *Gottschalk v. Benson,* 409 U.S. 63, 70(1972); *Cochrane v. Deener,* 94 U.S. 780, 787-88 (1876).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 57, 2, 5, 6, 11, 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 6,701,725 to Rossi in view of U.S. Patent 6,629,008 to Shiiba et al.

4.1 Regarding independent claim 57, *Rossi* discloses, *a method comprising: receiving condenser parameters, evaporator parameters and compressor parameters of a cooling system* (Figure 1 and the accompanying text and Col. 2 lines 13-24 and Col. 5 lines 16-36 *Rossi* is teaching modeling the performance of a cooling system), *configuring a model of said cooling system according to said condenser parameters, said evaporator parameters and said compressor parameters;* (Figure 3 "Parameter input" Col. 10 lines 27-67 and Col. 11 lines 1-20 and Col. 12 lines 34-41, Figure 3 "Parameter input" and Col. 15 lines 48-51 and Col. 6 lines 43-44 "…assumptions about the evaporator are made…", Figure 3 "Parameter input" and Col. 6 lines 55-67 and Col. 7 lines 1-45)*; and a flow control device* (Figure 1 # 14 and Col. 4 lines 10-28 "expansion device" and Col. 4 lines 51-56 "reversing valve").

However, *Rossi* does not expressly disclose, *generating at least one flow control device selection parameter with a computer simulation of said cooling system based on said configuration model;* and *outputting at least one flow control device that corresponds to said at least one flow control device selection parameter generated by said computer simulation.*

Shiiba et al. clearly discloses *generating at least one flow control device selection parameter with a computer simulation of said cooling system based on said configuration model;* and *outputting at least one flow control device that corresponds to said at least one flow control device selection parameter generated by said computer simulation* (Figure 5A and Col. 7 lines 49-67 and Col. 8 lines 1-26 see also Col. 4 lines 6-37).

Rossi and *Shiiba et al.* are analogous art because they both come from the same problem solving area of cooling systems.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have used the teachings of *Shiiba et al.* for selecting different flow control devices when designing an HVAC system.

The motivation for doing so would have been to provide a production control system that efficiently processes the building of cooling system(s) by dividing the components into functional blocks and further reduce economic loss and improve productivity, *just as a cooling system simulator would do,* see *Shiiba et al.* (Col. 2 lines 46-57 and Col. 18 lines 38-57).

Therefore, it would have been obvious to combine *Shiiba et al.* with *Rossi* to obtain the invention as specified in claims 57, 2, 5, 6, 11, 12 and 13.

4.2 Regarding claim 2, *Rossi* teaches, *said flow control device includes one of a capillary tube device and an orifice device* (Col. 4 line 14 "…capillary tube of fixed orifice…").

4.3 Regarding claim 5, *Rossi* discloses, *determining refrigerant mass flow rates* (Col. 10 lines 61-65).

4.4 Regarding claim 6, *Rossi* teaches, *wherein said properties include refrigerant charge and one of refrigerant superheat temperature and refrigerant sub-cooling temperature* (Col. 5 lines 7-15 "refrigerant charge…" and Col. 2 lines 41-53"superheat").

4.5 Regarding claim 11, *Rossi* teaches *modeling tubing and heat transfer characteristics* (Figure 1 and Col. 5 line 45-52see also Col. 5 lines 46-59).

4.6 Regarding claim 12 while *Rossi* does not expressly disclose where said output is effected by parameters based on accumulator parameters, *Rossi* does teach that the output is effected by parameters relating to other elements of the cooling system, *see Figures 2 & 3 and Col. 12 lines 24-50.*

Therefore one of ordinary skill would find it obvious that any changes to the parameters of any element of the cooling system would affect the output, including the accumulator.

4.7 Regarding claim 13, *Rossi* teaches *wherein said condenser parameters and said compressor parameters are input as air-cooled condensing unit parameters* (Figure 1 # 12 and Col. 3 lines 58-67 and Col. 4 lines 1-9 and Col. 5 lines 37-45).

5. Claims 43, 16, 17, 18, 19, 20, 23, 24, 25 and 44-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Laid Open Application Number H 9-257319 to Sachiko Kumada hereafter referred to as Kumada in view of U.S. Patent 3,708,998 to Scherer et al. and in further view of U.S. Pat. Publication 2004/0129011 to Kikuchi et al.

5.1 Regarding Claim 43, *Kumada* discloses, *a method of computer-based simulation of a cooling system,* (page 2 Abstract "conducting simulations of coolant circuits") *comprising:*

inputting condensing unit parameters, evaporator parameters and compressor parameters for said cooling system; (page 10 "In step S203, the generated main processor 7 reads in specification data related to the configuring elements (compressor, evaporator, condenser) from the database file"), *inputting refrigerant properties for a refrigerant flowing through said cooling system;* (section [0011], page 8 "computing the coolant flow volume") *including configuration information for a heat exchanger of said cooling system* (page 28 figure 11 "HEAT exchanger #3), *processing said condensing unit parameters, said evaporator parameters and said compressor parameters through a model of said cooling system; and generating system outputs based on said model* (page 9 section [0013] "And item 10 is an output file…").

However, while *Kumada* does not expressly disclose, *inputting refrigerant properties for a refrigerant flowing through said cooling system, Kumada* does teach computing coolant flow volume, which is teaching a *property* of how the *refrigerant* is being modeled in the simulation. Further and in regards to the newly amended limitation of *said configuration information including a number of equivalent parallel refrigerant circuits.*

Scherer et al. teaches; Col. 1 lines 56-63 "Superheat temperature of refrigerant is defined as the temperature of the refrigerant above its boiling point for any given temperature".

Kikuchi et al. teaches, *a number of equivalent parallel refrigerant circuits* [0055].

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have provided in a simulation of a cooling system a method of inputting *refrigerant properties for a refrigerant flowing through said cooling system* as disclosed in *Scherer et al.* in the cooling system simulator of *Kumada.*

The suggestion for doing so would have been to provide for the fact that without knowing the *Superheat temperature* of the coolant being used in the cooling system the simulation would

fail to accurately simulate the performance of a given cooling system, Col. 1 lines 30-67 of *Scherer et al.* As regards the suggestion for combining the teachings of *Kumada* with the teachings of *Kikuchi et al.* the motivation for doing so would have been to provide for a model of a cooling system that reflects the known in the art method of using parallel refrigerant circuits in order to improve efficiency of cooling systems, see [0005] of Kikuchi et al. Further, an artisan of ordinary skill, at the time of Applicants' invention would *desire* that a model of a cooling system include improvements to cooling system technology as they become available.

Therefore, it would have been obvious to combine *Scherer et al.* and *Kikuchi et al.* with *Kumada* in order to obtain the invention as specified in claims 43, 16, 17, 18, 19, 20, 23, 24, 25 and 44-48.

5.2 Regarding claim 16, *Kumada* discloses, *generating a list of available condensing units, selecting a condensing unit from said list of available condensing units and automatically inputting said condensing unit parameters based on said selected condensing unit* (see Figure 3 and Figures 8-10 and the descriptive text).

5.3 Regarding claim 17, *Kumada* discloses, *wherein said condensing unit parameters include compressor parameters and condenser parameters* (see Figure 3 and Figures 8-10 and the descriptive text)

5.4 Regarding claim 18, *Kumada* discloses the functional equivalent of, *selecting a flow control device for said cooling system based on said system outputs* (see Figure 3 and Figures 8-10 and the descriptive text).

5.5 Regarding claim 19, *Kumada* discloses, *wherein said flow control device includes one of a capillary tube device and an orifice device* (see Figure 3 and Figures 8-10 and the descriptive text).

5.6 Regarding claim 20, *Kumada* does not expressly disclose, *selecting a flow control parameter including a sub-cooling temperature and a superheat temperature*.

However, *Scherer et al.* teaches, Col. 1 lines 40-49, "…the diaphragm and valve member move to open the passage and admit more liquid refrigerant into the evaporator to increase the evaporator pressure" as well as, Col. 1 lines 56-63 "Superheat temperature of refrigerant is defined as the temperature of the refrigerant above its boiling point for any given temperature".

5.7 Regarding claim 23, *Kumada* does not expressly disclose, *wherein said properties include refrigerant charge and one of refrigerant superheat temperature and refrigerant sub-cooling temperature*.

However, *Scherer et al.* teaches, Col. 1 lines 40-49, "…the diaphragm and valve member move to open the passage and admit more liquid refrigerant into the evaporator to increase the evaporator pressure" as well as, Col. 1 lines 56-63 "Superheat temperature of refrigerant is defined as the temperature of the refrigerant above its boiling point for any given temperature".

5.8 Regarding claim 24, *Kumada* discloses, *further comprising inputting tubing and line heat transfer parameters, wherein said system outputs are further based on said tubing and line heat transfer parameters* (see Figure 10 and the descriptive text).

5.9 Regarding claims 25, *Kumada* discloses, *inputting accumulator parameters, wherein said system outputs are further based on said accumulator parameters* (section [0035] page 20 "specification data can be accumulated…").

5.10 Regarding claim 44, *Kumada* discloses, *tube geometry information of said heat exchanger* (Figures 10, 11 and 12 and the descriptive text for those figures).

5.11 Regarding claim 45, *Kumada* discloses, *horizontal tube spacing information, vertical tube spacing information, outside diameter of tubing information and tubing type information* (Figures 10, 11 and 12 and the descriptive text for those figures).

5.12 Regarding claim 46, *Kumada* does not expressly disclose, *equivalent parallel refrigerant circuits information,* however, *Scherer et al.* teaches; Col. 1 lines 56-63 "Superheat temperature of refrigerant is defined as the temperature of the refrigerant above its boiling point for any given temperature".

5.13 Regarding claim 47, *Kumada* discloses, *fin geometry information* (Figures 10, 11 and 12 and the descriptive text for those figures).

5.14 Regarding claim 48, *Kumada* discloses, *wherein said fin geometry information includes at least one of fin density information and fin type information* (Figures 10, 11 and 12 and the descriptive text for those figures).

6. Claims 8, 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 6,701,725 Rossi in view of U.S. Patent 6,629,008 to Shiiba et al. as applied to claims 57, 2, 5, 6, 11, 12 and 13 above and in further view of US Patent 5,687,094 Kagawa.

6.1 Regarding claim 8, *Rossi* as modified by *Shiiba et al.* and does not expressly disclose *generating a list of compressors*.

Kagawa discloses *generating a list of available compressors based on search parameters, selecting a compressor from said list of available compressors and automatically inputting said compressor parameters based on said selected compressor* (Col. 6 lines 26-58).

Rossi, *Shiiba et al.* and *Kagawa* are analogous art because they are from the same problem solving area of selecting components of systems based on selected parameters.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have used the knowledge based systems of *Kagawa* in combination with the cooling system modeling systems of *Rossi* and the valve selection methods of *Shiiba et al.*

The motivation for doing so would have been to provide an industrial product design verification process where verification experience is accumulated and efficiency is improved *see Col. 1 lines 58-62 Kagawa*.

Therefore, it would have been obvious to combine *Kagawa* with *Rossi* to obtain the invention specified in claims 8, 9 and 10.

6.2 As regards claim 9, *Rossi* discloses, *said search parameters include at least one of a model number, a voltage, a phase, a frequency, a refrigerant type, an application type and a capacity* (Col. 8 lines 15-31).

6.3 As regards claim 10, *Rossi* discloses, *wherein said search parameters include a capacity and a capacity tolerance* (Col. 1 lines 14-63 see also Figure 2 "Capacity Index").

7. Claims 4, 7 and 14 are rejected under 35 U.S.C. 103 (a) as being unpatentable over US Patent 6,701,725 Rossi in view of U.S. Patent 6,629,008 to Shiiba et al. as applied to claims 57, 2, 5, 6, 11, 12 and 13 and in further view of U.S. Patent 4,885,694 Pray.

7.1 Regarding claim 4 *Rossi* as modified by *Renders* does not expressly disclose, *generating a list of flow control devices.*

Pray discloses *generating a list of flow control devices,* (Figure 6 # 320 and more specifically # 618 and the descriptive text and Col. 13 lines 40-64 more specifically on line 63 "…valve sizing program for generating…").

Rossi and *Shiiba et al.* as modified by *Pray* are analogous art because they are both from the similar problem solving area of modeling complex systems.

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have used the CAD methods of *Pray* in combination with the cooling system methods of *Rossi* as modified by *Renders*.

The suggestion for doing so would have been to automate the design process and decrease the amount of time required for designing building control systems (*Pray Col. 1 lines 24-27*).

Therefore, it would have been obvious to combine *Pray* with *Rossi* as modified by *Shiiba et al.* to obtain the invention specified in claims 4, 7 and 14.

7.2 Regarding claim 7, *Rossi* as modified by *Shiiba* does not expressly disclose *generating a list of available condensers*.

However, *Pray* teaches generating a list of devices used in the design of systems in a building, (Figure 6 # 320 and more specifically # 618 and the descriptive text and Col. 13 lines 40-64 more specifically on line 63 "…valve sizing program for generating…").

It view of the teachings of *Pray* generating a list of available elements of a cooling system using a design tool would be obvious.

7.3 Regarding claim 14, *Rossi* as modified by *Shiiba et al.* does not expressly disclose *generating a list of available air-cooled condensing units*.

However, *Pray* teaches generating a list of devices used in the design of systems in a building, (Figure 6 # 320 and more specifically # 618 and the descriptive text and Col. 13 lines 40-64 more specifically on line 63 "…valve sizing program for generating…").

It view of the teachings of *Pray* generating a list of available elements of a cooling system using a design tool would be obvious.

8. Claims 58-64 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Rossi* in view of *Shiiba* as applied to claims 57, 2, 5, 6, 11, 12 and 13 above and in further view of Pub. No. 2002/0040280 to Morgan.

8.1 *Rossi* as modified by *Shiiba* teaches a cooling system simulator as recited in claims 57, 2, 5, 6, 11, 12 and 13 for the reasons above, differing from the invention as recited in claims 58-64 in that their combined teaching lacks;

(claim 58) generating at least one flow control device selection parameter includes at least one refrigeration type parameter, a percent bleed parameter, an evaporator temperature parameter, a liquid temperature parameter, and an evaporator capacity parameter,

(claim 59) wherein said generating said at least one flow control device selection parameter includes generating a refrigerant type,

(claim 60) wherein said generating said at least one flow control device selection parameter includes generating a percent bleed parameter,

(claim 61) wherein said generating said at least one flow control device selection parameter includes an evaporator temperature parameter,

(claim 62) wherein said generating said at least one flow control device selection parameter includes generating a condensing temperature parameter,

(claim 63) wherein said generating said at least one flow control device selection parameter includes generating a liquid temperature parameter,

(claim 64) wherein said generating said at least one flow control device selection parameter includes generating an evaporator capacity parameter.

Morgan teaches, (claims 58 & 59) refrigeration type parameter [0037], a percent bleed parameter, (claim 60) an evaporator temperature parameter [0004, 0012, 0080], (claim 61) a condensing temperature parameter [0053], a liquid temperature parameter [0074], (claim 62) a condensing temperature parameter[0071-0074], (claim 63) and an evaporator capacity parameter[0103] (claim 64), see also Figure 8 and the descriptive text.

Rossi as modified by *Shiiba* and *Morgan* are analogous art because they both come from the same problem solving area of cooling system dynamics.

Therefore, it would have been obvious, to an artisan of ordinary skill, at the time the invention was made to have used the evaporator teachings of *Morgan* in combination with the cooling system teachings of *Rossi* and *Shiiba* because of the need in the art to have a diagnostic tool that permits the compressor to operate, see *Morgan* paragraph [0008-0009].

Possible Allowable Subject Matter

9. Claims 65-70, 50-56, 27-32 and 33-42 would be allowable if re-written to overcome the 35 U.S.C. 101 rejections presented above.

9.1 Claim 21 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9.2 The following is a statement of reasons for the indication of allowable subject matter:

As regards independent claim 65, while *Rossi* teaches a cooling system simulation model and *Sachiko* teaches a computer based simulation model of a cooling system and *Singh* teaches

calculating a dry bulb temperature, **none of these references taken alone or in combination with the prior art of record disclose,** *a first air property of a wet bulb* and *a second air property of a dry bulb,* specifically including:

(claim 65) "receiving at least one first air property input including at least one of a wet bulb temperature, a relative humidity, a humidity ratio, a specific volume, an enthalpy, and a dew point temperature; calculating at least one second air property input based on said dry bulb temperature and said at least one first air property input, said at least one second air property input including at least one of said wet bulb temperature, said relative humidity, said humidity ratio, said specific volume, said enthalpy, and said dew point temperature; configuring a model of said cooling system according to said condenser parameters, said evaporator parameters, said compressor parameters, said at least one first air property input, and said at least one second air property input;", **in combination with the remaining elements and features of the claimed invention.**

9.3 Dependent claims 66-70, 50-56, 27-32 and 33-42 would also be allowable, if re-written to overcome the 35 U.S.C. 101 rejections set forth above, if for no other reason than the fact that they depend upon an allowed base claim.

9.4 As regards claim 21, As regards independent claim 65, while *Rossi* teaches a cooling system simulation model and *Sachiko* teaches a computer based simulation model of a cooling system and *Singh* teaches calculating a dry bulb temperature, **none of these references taken alone or in combination with the prior art of record disclose,** *generating a list of flow control devices based on said system outputs and selecting said flow device from said list of flow devices,* specifically including:

(claim 21) "generating a list of flow control devices based on said system outputs and selecting said flow device from said list of flow devices," **in combination with the remaining elements and features of the claimed invention and all of the claimed limitations from all of the claims from which claim 21 depends.**

It is further noted that claim 21 is being rejected under 35 U.S.C. 101 for the reasons above.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DWIN M. CRAIG whose telephone number is (571)272-3710. The examiner can normally be reached on 10:00 - 6:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul L. Rodriguez can be reached on (571) 272-3753. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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